

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Assistant Commissioner for Patents  
 United States Patent and Trademark  
 Office  
 Box PCT  
 Washington, D.C. 20231  
 ÉTATS-UNIS D'AMÉRIQUE

in its capacity as elected Office

<b>Date of mailing</b> (day/month/year) 09 November 1999 (09.11.99)	
<b>International application No.</b> PCT/GB99/00298	<b>Applicant's or agent's file reference</b> 57.0291WOPCT
<b>International filing date</b> (day/month/year) 28 January 1999 (28.01.99)	<b>Priority date</b> (day/month/year) 17 February 1998 (17.02.98)
<b>Applicant</b> BAILEY, Louise et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

16 September 1999 (16.09.99)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer C. Carrié Telephone No.: (41-22) 338.83.38
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# PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>57.0291WOPCT</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 99/00298</b>	International filing date (day/month/year) <b>28/01/1999</b>	(Earliest) Priority Date (day/month/year) <b>17/02/1998</b>
Applicant <b>SOFITECH N.V. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

### 1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB 99/00298

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C09K7/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 C09K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 44 04 219 A (BAYER AG) 17 August 1995 see page 2, line 1 - line 8	1-8
Y	see page 2, line 31 - page 3, line 42; example 1	8,9
X	GB 2 293 373 A (ALLBRIGHT AND WILSON) 27 March 1996	1,3,5-8
Y	see page 2, line 6 - page 3, line 7 see page 6, line 15 - line 17; claims 1-3,6-9; example 2	8,9
A	DE 17 19 428 A (MONSANTO CO) 1 February 1973 see page 3, line 1 - page 4, line 3 see page 13, line 12 - page 14, line 23	1-9
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

11 May 1999

Date of mailing of the international search report

21/05/1999

Name and mailing address of the ISA

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Authorized officer

Boulon, A

# INTERNATIONAL SEARCH REPORT

Internat al Application No

PCT/GB 99/00298

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 146 245 A (HENKEL) 19 March 1969 see page 1, line 9 - line 21 see page 2, line 43 - line 54 -----	1-9

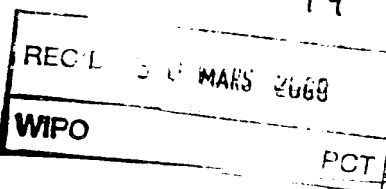
# INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/GB 99/00298

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
DE 4404219	A	17-08-1995	NONE	
GB 2293373	A	27-03-1996	AU 3179295 A	04-04-1996
			CA 2158674 A	22-03-1996
			EP 0705892 A	10-04-1996
			FI 954460 A	22-03-1996
			JP 8243373 A	24-09-1996
			ZA 9508003 A	04-06-1996
DE 1719428	A	01-02-1973	NONE	
GB 1146245	A		NONE	



## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 57.0291WOPCT	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB99/00298	International filing date (day/month/year) 28/01/1999	Priority date (day/month/year) 17/02/1998
International Patent Classification (IPC) or national classification and IPC C09K7/02		
Applicant SOFITECH N.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 6 sheets, including this cover sheet.

- ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand  16/09/1999	Date of completion of this report  27.03.2000
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Ammendola, P  Telephone No. +49 89 2399 8662  

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB99/00298

**I. Basis of the report**

1. This report has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

**Description, pages:**

1-7 as originally filed

**Claims, No.:**

1-8 with telefax of 22/02/2000

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:  
☐ the claims, Nos.:  
☐ the drawings, sheets:

3. ☒ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

**see separate sheet**

4. Additional observations, if necessary:

**III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application.  
☒ claims Nos. 1-6,.

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT**

International application No. PCT/GB99/00298

- ☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):

**see separate sheet**

- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☐ no international search report has been established for the said claims Nos. .

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Yes: Claims
	No: Claims 7-16
Inventive step (IS)	Yes: Claims
	No: Claims 7-16
Industrial applicability (IA)	Yes: Claims 7-16
	No: Claims

**2. Citations and explanations**

**see separate sheet**

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**



**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB99/00298

Reference is made to the following documents:

- D1: DE 44 04 219 A (BAYER AG) 17 August 1995
- D2: GB-A-2 293 373 (ALLBRIGHT AND WILSON) 27 March 1996
- D3: DE 17 19 428 A (MONSANTO CO) 1 February 1973

**Re Item I**

**Basis of the report**

1. The amended set of claims filed on 22.2.2000 goes beyond the disclosure of the application as filed (Rule 70(2) PCT).

In particular:

- i) Amended claim 1 corresponds neither to original claim 7, nor to original claim 9 nor to original claim 13 and no portion of the description defines such group of drilling fluids characterized by the combination of features: phosphate additive + water as base material + shale swelling inhibition agent. The same applies also to the further combinations with the features described in amended claims 3-5 and 7, which are all dependent onto claim 1, combinations not corresponding to any of the original claims or of the preferred embodiments mentioned in the description.
- ii) Amended claim 2 seems based on original claim 13. However, original claim 13 does not provide any support for the alternative expressed by "**/or**" placed between the viscosifying agent and the filtrate reducing agent definitions in amended claim 2.
- iii) Similarly to claim 1, no basis could be found in the application as filed also for the specific combination of features given in amended "method" claim 8. Therefore also amended claim 6 (which is understandable only assuming that it should make reference to the method of claim 8 rather than to claim 1, which defines no "method") is considered to go beyond the disclosure of the application as originally filed.

In conclusion, the Preliminary Examination Report is established as if the amended set of claims had not been filed: i.e. considering the original set of claims 1-16.

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

2. The definition of the compound of claim 1 as an "additive for a drilling fluid" indicates exclusively a desired property of the compound itself. In other words, claim 1 is

equivalent to a claim directed to "A compound suitable as additive for a drilling fluid having the formula...".

Therefore, entire classes of **known** phosphorous compounds anticipate claim 1. In particular, the subject-matter of claim 1 includes a selected group of **known** phosphonic and phosphoric acids and the organic esters thereof. Even the preferred phosphorous compounds used in the invention examples are **all well known**. The lack of novelty of the claimed matter is so self-evident to any chemist, that an **error** must have occurred in the formulation of original claims 1-6.

### Re Item V

#### **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

##### 3.a) NOVELTY (Article 33(2) PCT)

The use of phosphonic or phosphoric acids for stabilizing drilling fluids is well known (see in D1 the claims, the formulae and p.2 line 6; in D2 p.2 lines 3 and 4 from the bottom, in D3 claims and p.13 line 12- p.14 line 23). Therefore the subject-matter of original claims 7-16 is not novel.

It is underlined that, as confirmed even by the definition at p.3/27-28 of the description, the "shale swelling inhibiting agent" is a broad class of compounds including also phosphates. When adding a phosphoric or a phosphonic acid to a drilling fluids some phosphoric or phosphonic salts are inevitably formed. Therefore, the phosphate compounds used in the drilling fluids of the state of the art would satisfy the requirements of original claim 13 with respect to the presence of the "shale swelling inhibiting agent" as well as to the presence of the "additive".

##### 3.b) INVENTIVE STEP (Article 33(3) PCT)

Even if the applicant would be able to limit the claimed matter to drilling fluids which are not explicitly anticipated in D1-D3, still it is evident to the skilled artisan that other compounds very similar to the the phosphorus-containing "dispersing agents", "anti-flocculants", etc.. already used in the field of drilling fluids would also reduce the formation of agglomerates of the cuttings and, therefore, decrease the amount of "bit-balling" or "cutting accretions". Even the additional presence of a "shale swelling inhibiting agent" in the drilling fluid does not render surprising this obvious effect. Therefore, no portion of the present application seems to be based on an inventive step.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB99/00298

**Re Item VII**

**Certain defects in the international application**

4.a) Original claim 9 includes all the features of original claim 7. Hence claim 9 should have been reformulated as a claim dependent on claim 7, Rule 6.4 PCT.

4.b) The documents D1-D3 have not been identified in the description nor has the relevant background art disclosed therein been discussed. The requirements of Rule 5.1(a)(ii) PCT are, thus, not fulfilled.

**Re Item VIII**

**Certain observations on the international application**

4.a) It is evident from the description at p.5 that also additives **not** according to the general formula given in the claims provide the desired "anti-accretion".

The presence of these compounds in the description brings doubts as to the clarity of the claims (Article 6 PCT). All the compounds mentioned on p. 5 and not according to the general formula given in the claims should have been deleted or labelled as "not according to the invention".

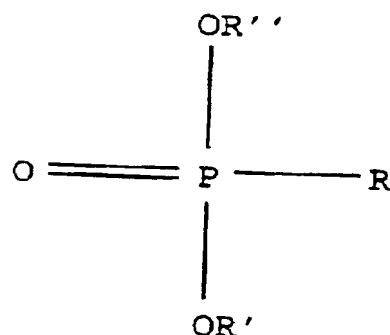
4.b) The definition of the **optional** "phosphate compounds" in claim 14 is so broad that it overlaps with that of the **essential** additive according to the general formula in the main claims. The applicant should have clarified (Article 6 PCT) in claims 13 and 14 that the "shale swelling inhibition" must be "reactive anionic" (compare with the description at p.3/21).

4.c) Claim 8 should refer back to the drilling fluid of claim "7" (rather than "5").

- 8 -

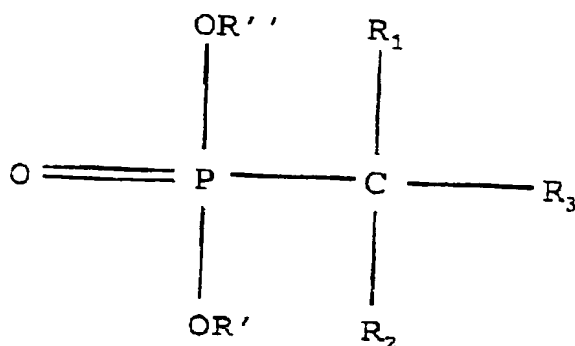
## CLAIMS

1. A drilling fluid comprising  
water as base component;  
5 a shale swelling inhibition agent; and  
an additive for a drilling fluid, said additive consisting of  
a compound in accordance with the formula



- 10 wherein R, R' and R'' are radicals exclusively containing H  
atoms or combinations of H, C, O or P atoms up to a maximum  
of 100 atoms.
- 15 2. The drilling fluid of claim 1, further comprising  
a viscosifying agent to increase the viscosity of the  
fluid; and/or  
a filtrate reducing agent; and/or  
a weighting agent to adjust the density of the fluid.
- 20 3. The drilling fluid of claim 1, wherein R, R' and R'' are  
radicals exclusively containing H atoms or combinations of H,  
C or O.
- 25 4. The drilling fluid of claim 1, wherein the additive consists  
of a compound in accordance with the formula

- 9 -



wherein  $\text{R}_1$ ,  $\text{R}_2$  and  $\text{R}_3$  are radicals exclusively containing H atoms or combinations of H, C, O or P atoms up to a maximum of 100 atoms.

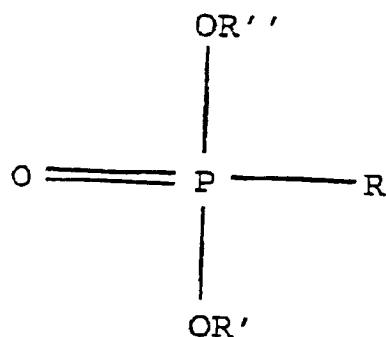
5. The drilling fluid of claim 4, wherein  $\text{R}_1$ ,  $\text{R}_2$  and  $\text{R}_3$  are radicals exclusively containing H atoms or combinations of H, C or O.

6. The method of claim 1, wherein the additive is added in a concentration of up to about 10% weight by volume of the drilling fluid.

7. The drilling fluid of claim 1, wherein the shale swelling inhibition agent comprises phosphate- or silicate-based compounds.

8. Method of preventing accretion of cuttings in a borehole, said method comprising the steps of preparing a water-based drilling fluid comprising a shale swelling inhibition agent and an additive for a drilling fluid, said additive consisting of a compound in accordance with the formula

- 10 -



wherein R, R' and R'' are radicals exclusively containing H atoms or combinations of H, C, O or P atoms up to a maximum of 100 atoms; and

5 pumping said drilling fluid into the wellbore prior to or during a drilling operation.